PART 723 - 2: LOCAL ROLES IN WATER EMERGENCIES

2-1 THE NEED FOR LOCAL WATER EMERGENCY PLANNING

Planning for water emergencies must accommodate the decentralized management of our state's water resources. Our traditional independent and often single-discipline approach to water-related issues combined with current resource management concerns makes it all the more critical to develop management plans for individual water systems, as well as a comprehensive state emergency water management plan.

Following an emergency plan will ensure that primary aspects of recovery are addressed in an organized manner. Written plans are critical to establishing rehearsed emergency procedures, alleviating delays in response. Unexpected timing and consequences are an inherent aspect of emergency events, and preparation is important.

Most water systems have some inherent degree of emergency response capacity. Many of the major suppliers have water storage facilities emergency connections, redundancy, and standby power at pumping stations and treatment facilities. Few small systems, however, are equipped with adequate emergency connections to other communities or can demonstrate much stand-alone preparedness.

For the most part, water emergencies are not statewide but are confined to a portion of the state, in most cases to the service areas of an individual supplier. The emergency component of local water supply management plans will establish methods for each water system to obtain appropriate relief and order additional measures as conditions worsen, as well as provide an approach for easing use restrictions as conditions improve.

A detailed analysis by water suppliers at a local level should include temporary or permanent losses of supply, transmission main breaks, extraordinary emergency pre-treatment options, cost preparedness, response that achieve procedures, major users' needs, etc. Local emergency plans should identify phases of response that achieve demand reduction according to objectives established by the supplier, as they are needed.

The overall record *of* maintaining sufficient quantity and quality *of* water for Rhode Island is commendable, but disruptions do occur. It is important to realize that most water suppliers experience routine occurrences *of* pipe breaks, sticking valves, broken hydrants, and power outages. These are anticipated and are generally serviced without a disruption to service or notification to consumers and are not considered emergencies.

2-2 BACKGROUND ON LOCAL WATER SYSTEMS

About one-half of the state's geographic area and about 90 percent of the population are served by 31 water districts shown in Figure 1. Of these, Providence is by far the largest and represents about 35 percent of total water use. Other interconnected systems represent about 29 percent of water use (Pawtucket and Newport being the largest), and self-contained systems represent approximately 9 percent (primarily Woonsocket and Westerly). The entire Scituate Reservoir supply system (including Providence, Warwick. Kent County, and other districts) represents about 62 percent of total use (Division of Planning. 1991).

The state, through the 1997 Rules and Procedures for Water Supply System Management (WSSM) Planning, requires the preparation of local water supply management plans. Water suppliers who obtain, transport, purchase, or sell more than 50 million gallons per year are required to submit detailed plans, including an emergency component outlining warning and emergency phases and emergency response actions of the water supplier. Staggered submittals of the WSSM plans to the WRB were due from January 1997 through December 2002. The local water supply system management plans will address the most important and common considerations, varying with unique system configurations. Individual components of the collection, transmission, treatment, and distribution systems are analyzed for adequacy as part of the plans.

Figure 723-2 (1): Large Water Suppliers District Map

Table 723-2 (1) Water Suppliers Regulated by Water Resources Board 's Rules and Procedures for Water Supply System Management Planning

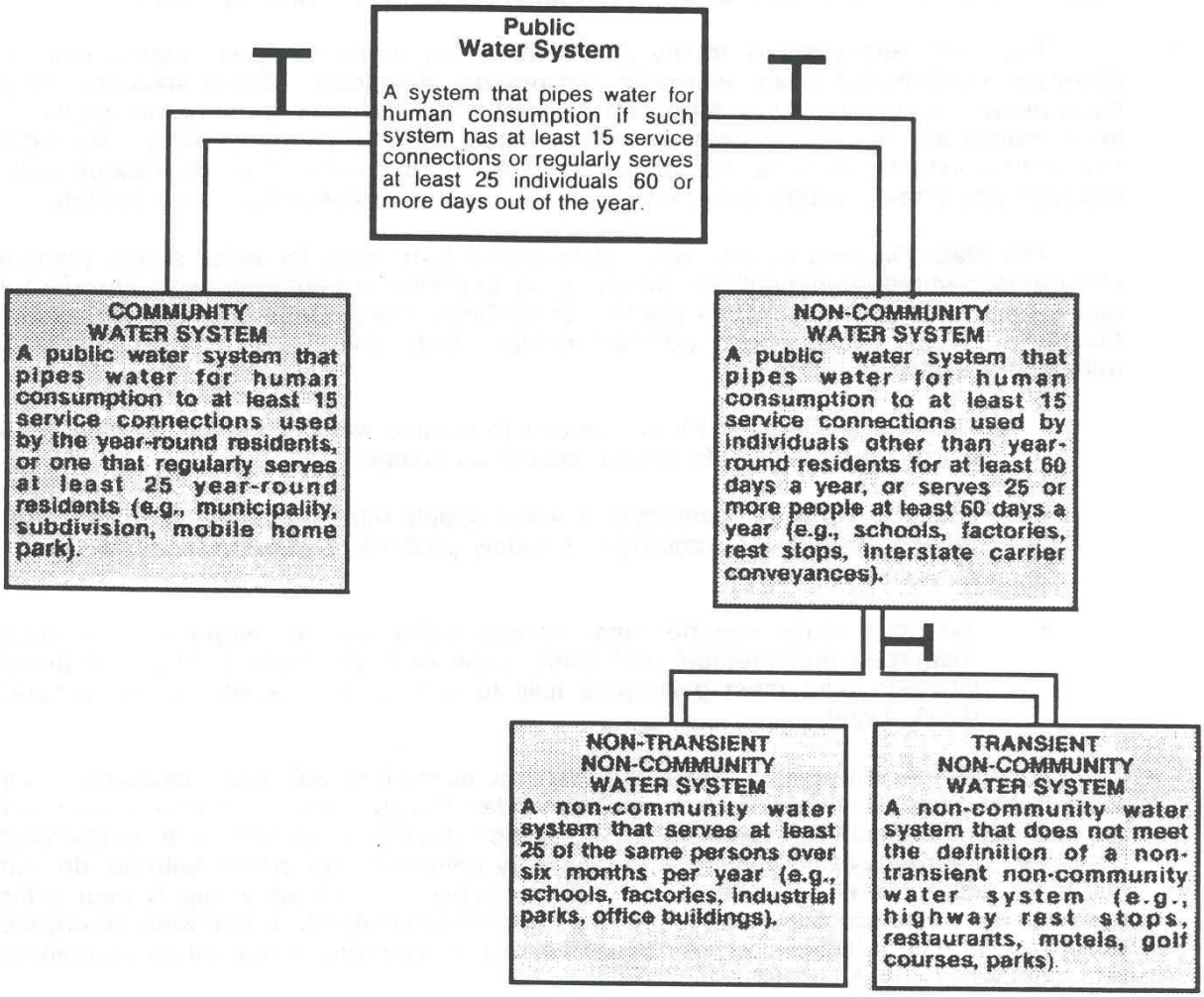
Water Supplier	MGY *
Providence Water Supply Board	15,133
Pawtucket Water Supply Board	4,580
Warwick Water Department	3,965
Kent County Water Authority	3,534
Newport Water Department	2,890
East Providence Water Department	2,100
Woonsocket Water Department	1,880
Westerly Water Department	1,745
Bristol County Water Authority	1,380
United Water Rhode Island	982
North Kingstown Water Department	889
Lincoln Water Commission	831
Cumberland Water Department	822
Portsmouth Water and Fire District	445
Narragansett Water Department	356
East Smithfield Water	349
Greenville Water District	298
RI Port Authority	292
Smithfield Water Supply Department.	234
North Tiverton Fire District	157
Pascoag Fire District	147
South Kingstown Water Department	125
Kingston Water District	124
Stone Bridge Fire District	91
Harrisville Fire District	81
Jamestown Water Division	73
Johnston Water Department	68
University of Rhode Island	50+

Source: Arthur D. Little Report (FY 1988, 1989, or 1990 base year).

Many smaller water suppliers operate throughout the state. Figure 2 describes the different categories of public water systems and defines the populations served by each. The Rhode Island Department of Health (DOH) is responsible to inspect public water systems, evaluate and approve all new, existing, or alternate sources of public water supply including emergency interconnections and routinely conduct engineering reviews of all aspects of public water systems. The DOH maintains lists of all public and private community, non-transient non-community, and transient water systems, as they are the state designated primacy agency responsible for regulation of water supply systems. Appendix C lists the Department of Health regulated water systems in Rhode Island by type as of October 2002.

Figure 723-2 (2): Types of Public Water Systems

A "public water system" has 15 or more service connections or regularly serves at least 25 people 60 or more days a year. Public water systems can be publicly or privately owned. Public water systems are subdivided by regulation into two major categories: **community** and **non-community** water systems. This division is based on the type of consumer served and the frequency the consumer uses the water. Basically, a **community system** serves water to a residential population, whereas a **non-community system** serves water to a non-residential population. The **non-community** category is further broken down into two categories: **non-transient non-community** water systems and **transient non-community** water systems.



Source: "General Public Notification for Public Water Systems," EPA Office of Water, Washington, D.C., September, 1989

2-3 FUTURE PLANNING CONSIDERATIONS

With the state's population reaching 1 million (US Census, 1990) and density ranked third nationwide, it is important to consider the relative availability of water to a growing population. If planning projections are correct, Rhode Island could realize an estimated increase of approximately 75,000 persons by 2020, mostly in Providence and Washington Counties (Division of Planning, 1989).

The state's comparative advantage of its small size is the same element which places much of the population at risk should water supply be compromised in any way. In particular, the greatest risk is any action that impairs the water quality of the Scituate Reservoir, upon which over 60 percent of the state's population depends for drinking water. Seventy-six percent of the state's population obtains its drinking water from surface water reservoirs and the remaining 24 percent depend on groundwater sources. The majority is considered to have good to excellent water quality (RIDEM, 1992).

Historically, water suppliers in Rhode Island have owned or have had the rights to surface and groundwater supplies by riparian rights doctrine. In recent years, however, smaller suppliers have had to contract with neighboring systems to meet the growing demands of their customers not only on account of population and economic growth, but due to water pollution or degraded quality of drinking water resources. This scenario is expected to worsen as the increasingly rigorous demands of the federal Safe Drinking Water Act [SDWA] are implemented.

The Safe Drinking Water Act (SOWA) of 1974 gives the Environmental Protection Agency [EPA] authority to set maximum contaminant levels for drinking water supplies. In Rhode Island the DOH has primacy in this regard and requires water suppliers to meet RIDOH drinking water standards. The SDWA also allows the establishment of standards for underground injection wells used for disposal, and designation of aquifers as sole sources of potable water (withholding federal funds for any project that would threaten their water quality). The SDWA standards regulate the quality of drinking water at the point of use, and these standards are only enforceable for community and non-community systems (RIDOH, 1977).

The EPA, which monitors compliance with drinking water standards nationwide, notes a high correlation between system size and water quality. Reports indicate that the majority of persistent violators of bacteriological standards and reporting requirements are small systems serving fewer than 3,300 customers (Division of Planning, 1988).

The 1986 Amendments to the SDWA establish more stringent requirements for maximum contaminant levels, inorganic and organic chemicals. These standards could force many smaller systems to terminate operations, as implementation of the regulations for sampling and testing, monitoring, and treatment may be cost-prohibitive. As higher demand for extensions of service will be created, improvements must be initiated with a thorough appraisal of supply and demand management for each public water system.

The State Planning Council has established a framework for water supply planning and recommended implementation programs, to constitute a comprehensive approach to water supply activities for Rhode Island. State Guide Plan Element 721, *Water Supply Policies for Rhode Island,* was adopted in May 1988. In brief, this policy document reflects three basic principles:

- water is a limited resource crucial to society which must be managed and utilized in the most efficient and beneficial manner;

- planning and management of a water supply must be coordinated with other related activities maximizing the supply potential and resolving conflicts with other interests;

- the state must assume clear responsibility for the major role in water resources management and other levels of government, public, and private interests, and must participate fully to ensure the viability of any program (DOA, 1988).

This Water Emergency Response Plan is consistent with both elements. The subsequent State Guide Plan Element 722, *Water Supply Plan for Rhode Island,* was adopted December 1991. Specifically, the policy document recommends contingency plans for "emergency operations necessitated by contamination, power failures, drought, floods, or failures of key portions of the delivery system". The water supply plan further supports the water policies document and details the rationale for a statewide emergency water plan to establish state and regional response preparedness guidelines coordinated with local water supply management plans.